

June 14, 1950

Dear Dr. Cavalli,

Dr. Lederberg has shown me your recent letter and thought that I might mention to you a similar experience with "pseudo-prototrophs."

In a cross between two strains of *S. typhi-murium*, both with double nutritional deficiencies (histidine, threonine by leusine, isoleucine-valine) there consistently arose numbers of small colonies that did not have any nutritional requirements and yet did not attain parental growth on a synthetic medium. Several fermentative markers were added to these stocks and though both parental types were recovered, no recombinants were found. The story was complicated as both parents were lysogenic and mutually antagonistic with the resultant prototrophs badly plaqued and often completely lost on transfer to a synthetic medium. The lysis would certainly afford opportunity for mutual feeding, but alone it can not explain the pseudotrophic behavior of the offspring.

No attempts were made at antigenic analysis although the parents were of different phases, however in light of your observation such might prove interesting.

Yours truly,

Norton Linder